

## A NEW SPECIES OF *LIMNELLIA* MALLOCH (DIPTERA: EPHYDRIDAE) FROM MT. RAINIER, WASHINGTON<sup>1</sup>

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ABSTRACT: *Limnellia rainier*, new species, is described from Mt. Rainier, Washington.

While the second author was conducting field studies on the Ephydriidae of Mt. Rainier Washington, the new species described here was discovered. Zack's field of work was done in conjunction with his thesis studies on the natural history of the shore flies of the Pacific Northwest. Although we have but one specimen, it is being described now to make its name available for other studies (Zack, in preparation) and because we have no doubt as to its status.

The description and key couplets follow the format of Mathis (1978) in his recent revision of the nearctic species of *Limnellia*. For further information on the generic relationships and details of other nearctic species, consult Mathis (1978).

Key (adapted from Mathis, 1978:260)

- 3. Cell  $R_1$  uniformly and entirely lightly infumated, lacking contrasting white areas . . . . .  
     . . . . . *L. rainier*, n.sp.
- Cell  $R_1$  with several white areas (irregularly shaped), contrasting distinctly with lightly  
     infumated background. . . . . 4.

*Limnellia rainier* Mathis and Zack, n.sp.  
(Figs. 1-5)

Diagnosis.—Specimens of *L. rainier* are distinguished from those of congeners by the following combination of character states: Setose portion of face uniformly whitish gray, tomentose; antennal foveae shallowly impressed; wing pattern as in Fig. 1; legs unicolorous, blackish; male terminalia as in Figs. 2-4.

Description.—A small shore fly, length approximately 2 mm (abdomen measured separately).

Head: head width-to-height ratio 1 : 0.62. Frons tomentose, dull, mostly brown, anterior margin and small area near vertex gray to grayish brown, parafrons mostly blackish; face weakly arched transversely, antennal foveae shallowly impressed but evident, facial coloration uniformly and entirely whitish gray, lacking transverse brown bands. Eye height-to-width ratio 1 : 0.89; eye-to-cheek ratio 1 : 0.12.

Thorax: Legs generally unicolorous, mostly blackish. Wing pattern (Fig. 1) as follows:

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Cell  $R_1$  uniformly lightly infumated, lacking white spots entirely; cell  $R_3$  with 4 white areas interspaced about equally from base to apex, basal white area slightly smaller than more apical ones; cell  $R_5$  with 3 white areas and 2 darkened areas in between, first darkened area at same level as posterior crossvein, second darkened area at about apical one-third, both white and darkened areas closely appressed to vein  $R_4+5$ ; vein  $R_4+5$  irregularly sinuate; discal cell with 1 white area along posterior margin at apical one-fourth, cell M with almost ring area white, faint, inconspicuous. Wing length-to-width ratio 1:0.48; costal vein ratio 1:0.27;  $M_1+2$  vein ratio 1:0.60. Halter with pedicel yellowish brown, capitellum blackish brown.

Abdomen: Male terminalia as follows: Epandrium (Fig. 4) in posterior view higher than wide, dorsum rounded, with cercal cavity width greater than one-half epandrial width at same level, widest subventrally; surstyli broadly fused medially, with shallow emargination dorsally and ventrally, ventral emargination more abruptly formed; aedeagus (Fig. 3) dissimilar from other *Limnellia* species, with a ventral and posteroventral projections, former more or less parallel sided, blunt apically, latter tapered to acute apex; gonite (Fig. 2) elongate, tapered, recurved apically.

Type Material.—Holotype male is labeled: "WASH: Pierce Co. Mt. Rainier N.P. Cayuse Pass, 4694' 14 Jul 1978, R.S. Zack, coll. ♂/HOLOTYPE *Limnellia rainier* Mathis and Zack [both labels handwritten, the last one red]." The holotype is in the National Museum of Natural History, Smithsonian Institution, USNM type number 76519. The abdomen and right wing have been removed. The abdominal structures have been dissected and are in an attached microvial; the wing has been slide mounted.

Geographic Distribution.—Known only from the type-locality on Mt. Rainier, Washington.

Natural History.—The holotype was collected in a small, Canadian Zone, wet-meadow (Taylor, 1922) located at the western boundary of Mt. Rainier National Park (Fig. 5). At 4694 foot elevation the meadow is surrounded by a mixed coniferous forest. The single male was taken while sweeping grasses along the margins of a small, snow-melt stream. Besides grasses, identifiable heavy vegetation included blueberry (*Vaccinium* sp.) and a species of montane lily (*Erythronium* sp.) that was beginning to emerge through the snow. Although collected in mid-July the area was still under considerable snow cover.

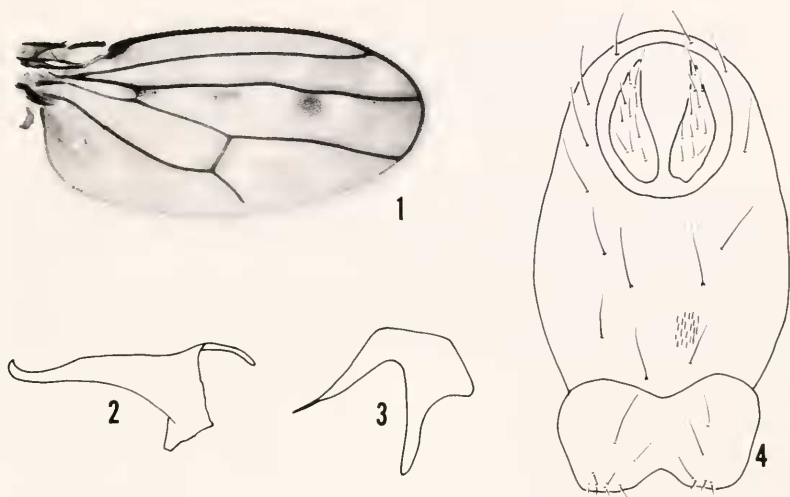
The presence of an adult when early seasonal conditions persisted suggests that the species overwinters in either the adult or pupal stage, the former more likely. Nothing is known of the behavior, food habits, or immature stages of this species. Other ephydriids collected at the same time included *Scatella stagnalis* (Fallén), *Hydrellia griseola* (Fallén), *H. platygastera* Cresson and *H. proclinata* Cresson. All were present, however, in extremely low numbers.

Etymology.—The specific epithet, *rainier*, is a noun in apposition and alludes to the type-locality, Mt. Rainier.

Remarks.—This is the twelfth species of the genus *Limnellia* to be discovered in the Nearctic Region. It is also the third from Mt. Rainier, the others being *L. balioplera* Mathis and *L. turneri* Mathis.

#### LITERATURE CITED

- Mathis, W.N. 1978. A revision of the nearctic species of *Limnellia* Malloch (Diptera: Ephydriidae). Proc. Biol. Soc. Wash. 91(1): 250-293.  
Taylor, W.P. 1922. A distributional and ecological study of Mount Rainier, Washington. Ecology 3:214-236.



Figs. 1-4. *Limnellia rainier*, n. sp. 1, wing; 2, left gonite, lateral view; 3, aedeagus, lateral view; 4, cerci, epandrium, and surstyli, posterior view.



Fig. 5. Type-locality habitat of *Limnellia rainier*, n. sp.